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EXAMINER

NGUYEN, HANH N

ART UNIT PAPER NUMBER

2834

DATE MAILED: 07/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary**Application No.**

10/041,613

Applicant(s)

CHO ET AL.

Examiner

Nguyen N Hanh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 1-11, 14, 36 and 44-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) is/are allowed.
- 6) ☒ Claim(s) 29-35 and 37-43 is/are rejected.
- 7) ☒ Claim(s) 12, 13 and 15-28 is/are objected to.
- 8) ☐ Claim(s) are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 08 October 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. .
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) .
- 4) ☐ Interview Summary (PTO-413) Paper No(s). .
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Remarks

1. In view of amendments, the Examiner withdraws the rejection under 35 U.S.C, first paragraph to claims 12-28,30 and the rejection under 35 U.S.C 102 (b) and 103(b) to claims 12-28, 37-43. The cancellation of claims 14,36,44-48 has been acknowledged.

Claim Objections

2. Claims 12,13,15-28 are objected to because there is no antecedent basis for "the first separate space" and "the second separate space" in claims 12 and 13. Appropriate correction is required.

Claims 15-25 depend on claim 12

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 29-35 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 29, the limitation "wherein one end of the first rotor receiving part near the first separate space and an opposite end of the second rotor receiving part near the second separate space are positioned on a vertical center line of the first and

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second stator cores and rotational shaft" was not described correctly in the amended specification. Refer to Fig. 10, one end of the first rotor receiving part 33a near the first separate space 33d is not positioned on a vertical centerline Lv but it is offset from Lv by the distance 33d. Similarly, one end of the second rotor receiving part 36a near the second separate space 36e is not positioned on a vertical centerline Lv but it is offset from Lv by the distance 36e. Under the lights of the specification, the Examiner interprets the limitation as "the first gap and the second gap are formed to face each other along a vertical center line of the first and second stator core" (refer to page 11, lines 4-10 of the specification).

Claims 30-35 depend on claim 29.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 29 is rejected under 35 U.S.C. 102(b) as being anticipated by Hayashi.

Regarding claim 29, Hayashi disclose a skeleton type brushless motor (preamble, patentable weight not given) comprising: a rotor (11 in Fig. 2) having a rotational shaft (14) in a center thereof; and a first stator core (15 in Fig. 4) having a first rotor receiving part (15a) formed therein for receiving the rotor; a second stator core (16) having a second rotor receiving part (16a) formed therein for receiving the rotor; first and second separate spaces (a and b in Fig. 2) formed between the first and second stator cores, respectively; a coil winding unit (18) connected to the first and second stator cores; and a coil (17) wound on the coil winding unit; wherein the first gap

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and the second gap are formed to face each other along a vertical center line of the first and second stator core (Fig. 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 30,31,37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi in view of Church et al.

Regarding claim 30, Hayashi shows all limitations of the claimed invention except showing the motor further comprising: a pair of nonconductive separation members, each separation member respectively being inserted between the stator cores and one of the shaft support parts and receiving a part of the rotor protruded from the stator cores.

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However, Church et al. disclose the motor further comprising: a pair of non conductive separation members (32 in Fig. 2 and 7), each separation member respectively being inserted between the stator cores and one of the shaft support parts and receiving a part of the rotor protruded from the stator cores for the purpose of fixing the rotor.

Since Hayashi and Church et al. are in the same field of endeavor, the purpose disclosed by Church et al. would have been recognized in the pertinent art of Hayashi.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Hayashi by using a pair of nonconductive separation members, each separation member respectively being inserted between the stator cores and one of the shaft support parts and receiving a part of the rotor protruded from the stator cores as taught by Church et al. for the purpose of fixing the rotor.

Regarding claim 31, Church et al. also show a tab (66) to cover the stator core for the purpose of protecting the stator.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Hayashi by using a cover on one of the separation member for covering the first and the second separate space for the purpose of protecting the stator.

Regarding claim 37, it is noted that all limitations of the claimed invention have been fulfilled by Hayashi and Church et al. as in claim 30.

Regarding claim 38, it is noted that all limitations of the claimed invention have been fulfilled by Hayashi and Church et al. as in claim 31.

6. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi in view of Jeske.

Regarding claim 32, Hayashi shows all limitations of the claimed invention except showing motor further comprising: a sensor for sensing a rotational position of the rotor is positioned around 10-20° from the symmetry line nearer to the coil winding unit in a direction opposite to a rotational direction of the rotor.

However, Jeske discloses motor further comprising: a sensor (14 in Fig. 2) for sensing a rotational position of said rotor, wherein said sensor is located approximately 10 to 20 degrees from the centerline in vertical direction and on opposite direction of rotation (Col. 3, lines 17-25) for the purpose of optimizing the motor efficiency.

Since Hayashi and Jeske are in the same field of endeavor, the purpose disclosed by Jeski would have been recognized in the pertinent art of Hayashi.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Hayashi by using a sensor for sensing a rotational position of the rotor is positioned around 10-20° from the symmetry line nearer to the coil winding unit in a direction opposite to a rotational direction of the rotor as taught by Jeski for the purpose of optimizing the motor efficiency.

7. Claims 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi in view of Erdman et al.

Regarding claim 33, Hayashi shows all limitations of the claimed invention except showing the motor further comprising: a PCB formed with a drive control circuit, and connected to the coil winding unit in a direction of the rotational shaft.

However, Erdman et al. disclose a motor structure further comprising a PCB (circuit board 336 in Fig. 2 and Col. 9, lines 1-5) formed with a drive control circuit, and connected to the coil winding unit in a direction of the rotational shaft for the purpose of controlling the motor.

Since Hayashi and Erdman et al. are in the same field of endeavor, the purpose disclosed by Erdman et al. would have been recognized in the pertinent art of Hayashi.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Hayashi by using a PCB formed with a drive control circuit, and connected to the coil winding unit in a direction of the rotational shaft as taught by Erdman et al. for the purpose of controlling the motor.

Regarding claim 34, Erdman et al. also show the motor wherein the PCB includes an AC capacitor connected to utility power for decreasing a voltage of the utility power, and a rectification circuit for rectifying the utility power (Col. 17, lines 39-50).

8. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi in view of Ackermann et al.

Regarding claim 35, Hayashi shows all limitations of the claimed invention except showing the motor wherein a pair of detent parts, having larger radius from the rotational shaft than radii of the first and second rotor receiving parts, are formed around

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each one end of the first and second rotor receiving parts in a rotational direction of the rotational shaft, and point symmetric centering on the rotational shaft.

However, Ackermann et al. disclose a motor structure wherein a pair of detent parts (26a and 27a in Fig. 2), having larger radius from the rotational shaft than radii of the first and second rotor receiving parts, are formed around each one end of the first and second rotor receiving parts in a rotational direction (31) of the rotational shaft, and point symmetric centering on the rotational shaft for the purpose of increasing torque.

Since Hayashi and Ackermann et al. are in the same field of endeavor, the purpose disclosed by Ackermann et al. would have been recognized in the pertinent art of Hayashi.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Hayashi by using a pair of detent parts, having larger radius from the rotational shaft than radii of the first and second rotor receiving parts, are formed around each one end of the first and second rotor receiving parts in a rotational direction of the rotational shaft, and point symmetric centering on the rotational shaft as taught by Ackermann et al. for the purpose of controlling the motor.

9. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi and Church et al. and further in view of Jeske.

Regarding claim 39, Hayashi and Church et al. show all limitations of the claimed invention except showing motor further comprising: a sensor for sensing a rotational

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position of the rotor is positioned around 10-20° from the symmetry line nearer to the coil winding unit in a direction opposite to a rotational direction of the rotor.

However, Jeske discloses motor further comprising: a sensor (14 in Fig. 2) for sensing a rotational position of said rotor, wherein said sensor is located approximately 10 to 20 degrees from the centerline in vertical direction and on opposite direction of rotation (Col. 3, lines 17-25) for the purpose of optimizing the motor efficiency.

Since Hayashi, Church et al. and Jeske are in the same field of endeavor, the purpose disclosed by Jeski would have been recognized in the pertinent art of Hayashi and Church et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Hayashi and Church et al. by using a sensor for sensing a rotational position of the rotor is positioned around 10-20° from the symmetry line nearer to the coil winding unit in a direction opposite to a rotational direction of the rotor as taught by Jeski for the purpose of optimizing the motor efficiency.

10. Claims 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi in view of Church et al. and further in view of Erdman et al.

Regarding claim 40, Hayashi and Church et al. show all limitations of the claimed invention except showing the motor further comprising: a PCB formed with a drive control circuit, and connected to the coil winding unit.

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However, Erdman et al. disclose a motor structure further comprising a PCB (circuit board 336 in Fig. 2 and Col. 9, lines 1-5) formed with a drive control circuit, and connected to the coil winding unit in.

Since Hayashi, Church et al. and Erdman et al. are in the same field of endeavor, the purpose disclosed by Erdman et al. would have been recognized in the pertinent art of Hayashi and Church et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Hayashi and Church et al. by using a PCB formed with a drive control circuit, and connected to the coil winding unit as taught by Erdman et al. for the purpose of controlling the motor.

Regarding claim 41, Erdman et al. also show the motor wherein the PCB includes an AC capacitor connected to utility power, and a rectification circuit for rectifying the utility power (Col. 17, lines 39-50).

Regarding claim 42, Erdman et al. also show the motor wherein a PCB cover (50,60,94 in Fig. 19), connected with the PCB in a length direction of the rotational shaft for covering the PCB (336), wherein a sensor receiving part (439), for receiving the sensor, is formed in (inside) the PCB cover.

11. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi in view of Church et al. and further in view of Ackermann et al.

Regarding claim 43, Hayashi and Church et al. show all limitations of the claimed invention except showing the motor wherein a pair of detent parts, having a larger radius from the rotational shaft than radii of the first and second rotor receiving parts,

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are formed around each one end of each of the first and second rotor receiving parts in a rotational direction of the rotational shaft, and point symmetric centering on the rotational shaft.

However, Ackermann et al. disclose a motor structure wherein a pair of detent parts (26a and 27a in Fig. 2), having larger radius from the rotational shaft than radii of the first and second rotor receiving parts, are formed around each one end of the first and second rotor receiving parts in a rotational direction (31) of the rotational shaft, and point symmetric centering on the rotational shaft for the purpose of increasing torque.

Since Hayashi, Church et al. and Ackermann et al. are in the same field of endeavor, the purpose disclosed by Ackermann et al. would have been recognized in the pertinent art of Hayashi and Church et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Hayashi and Church et al. by using a pair of detent parts, having larger radius from the rotational shaft than radii of the first and second rotor receiving parts, are formed around each one end of the first and second rotor receiving parts in a rotational direction of the rotational shaft, and point symmetric centering on the rotational shaft as taught by Ackermann et al. for the purpose of controlling the motor.

Allowable Subject Matter

12. Claims 12,13,15-28 would be allowable if rewritten to overcome the objection set forth in this Office action.

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13. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not show a skeleton type brushless motor comprising: a rotor having a rotational shaft in a center thereof; a first stator core including a first semicircular inner profile, a second stator core including a second semicircular inner profile wherein said second stator core is connected to said first stator core such that said second semicircular inner profile faces to said first semicircular inner profile and a first gap exist between said first end of said first stator core and said first end of said second stator core, and a second gap exists between said second end of said first stator core and said second end of said second stator core; wherein outer profiles of said first stator core and the second stator core near the first separate space (or gap) or the second separate space, protrude outwardly away from said rotational shaft as said outer profiles progress toward the end of the first stator core or the second stator core (as in claim 12).

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (703) 305-3466. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

July 7, 2002

**KARL TAMAI
PRIMARY EXAMINER**

A handwritten signature in black ink, appearing to read "Karl Tamai", is written diagonally across the page.